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ABSTRACT

The use of management information systems (MIS) in the department fiscal system is described in this paper, with a focus on development of a planning model prior to MIS implementation. Planning stages involve a task force to evaluate the situation prior to implementation. Applicability of simple and advanced management information systems are described, such as the Comprehensive Analytical Methods in Planning in University Systems (CAMPUS), Resource Requirements Prediction Model (RRPM), System for Evaluating Alternative Resource Commitments in Higher Education (SEARCH), and CAMUS III. MIS utilization in a college modern languages department and its applicability to elementary and secondary education are described. A conclusion is that management information systems are useful for department chairperson decision-making, especially in fiscal planning and allocation of personnel and resources. A limitation of MIS is that final decisions are made by people. Figures illustrate the MIS design and the task force development process. Appendices include definitions of terms and a list of MIS advantages and disadvantages. (12 references) (LMI)

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THE NATURE AND USE OF MANAGEMENT INFORMATION SYSTEMS IN MODERN LANGUAGE ADMINISTRATION

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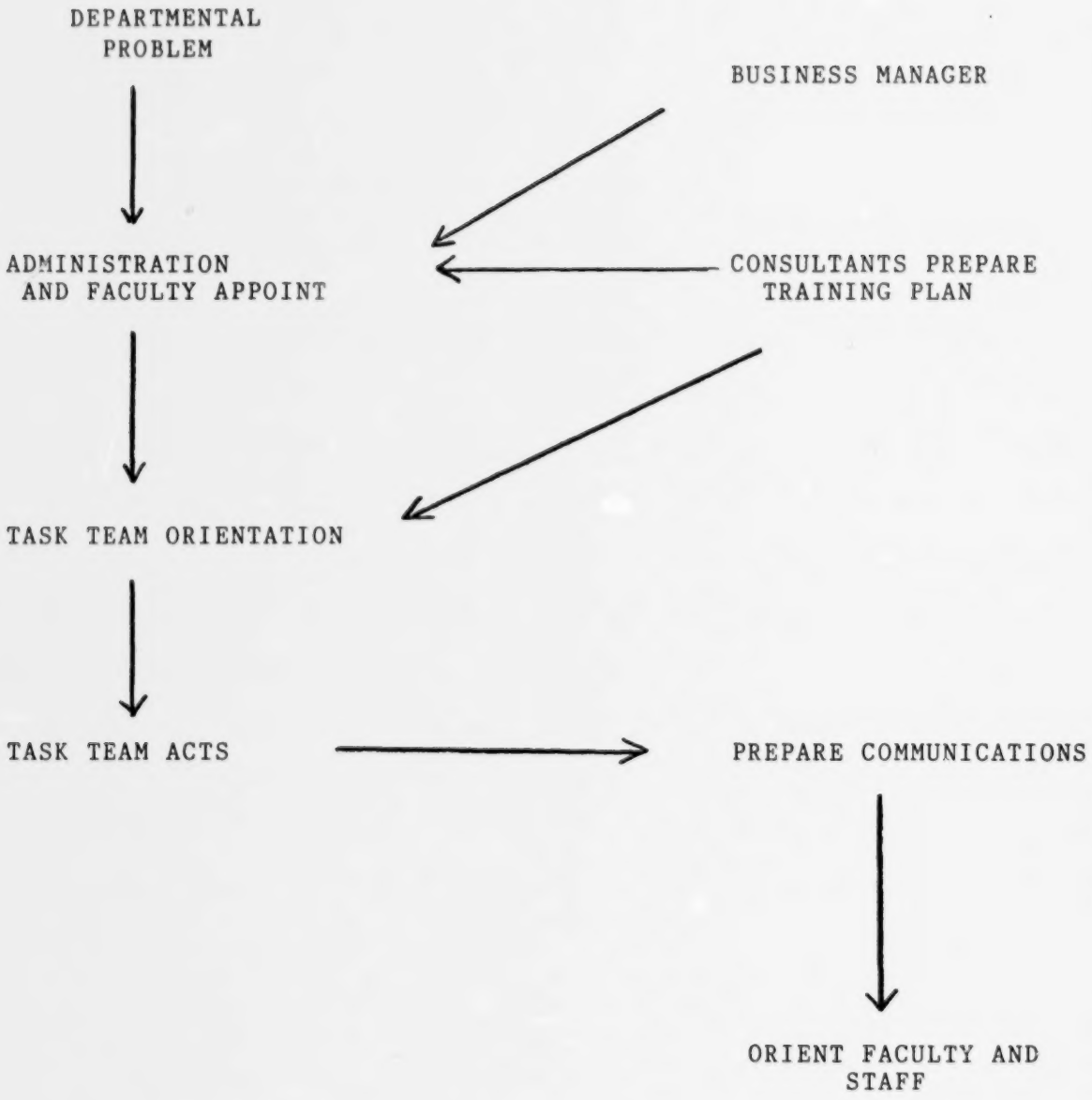
It is true, of course, that few American institutions have escaped the ravages of inflation and shrinking tax bases. In the past and now, information about the adjustment and adaptation of colleges centers around the ability of the institution to endure hardship during the turbulence and the actions of its aggressive and pragmatic administrators. The single most perplexing problem has been the attempt to provide a sound education with shrinking revenues. Of real importance is a stabilizing model using management and planning skills to maximize work and to keep afloat. I must acknowledge at this point that there simply will never be enough money to completely meet the needs of modern language education. Management of the department will constantly remain, however, the handling of scarcity with minimum damage to performance and to the institution.

The department chairperson has the role of manipulating the budget in this environment of scarcity. In the business sector of our country, the manager must formulate objectives and pursue them by making decisions about the budget using several alternative courses to maximize sales and profit in a competitive atmosphere (Rosenblatt et al., Modern Business: 35). There are significant differences between the business manager

and the chairperson, but the action-oriented concept of fiscal efficiency is analogous. Both require the coordination of money and people.

The purpose of this investigation is to illustrate the use of management information systems that can perform in the fiscal system of the organization that we call the department. Many theorists believe that school fiscal performance can be heightened by using MIS systems that put the decision-making function at the point in the organization where competence exists (Morphet et al., Educational Organization and Management: 473).

Undoubtedly, before a MIS system can be formulated, certain preliminary procedures must be initiated. These procedures involve planning such as exists in any decision-making process: (1) definition of the problem; (2) fact gathering; (3) analysis of information; and (4) selection of an alternative. The author of this investigation offers the following model to achieve the data base previous to MIS analysis. This model is similar to a PPBS task team concept (Aliotto and Jungher, Operational PPBS for Education: 30).


DEPARTMENTAL PROBLEM
BUSINESS MANAGER
ADMINISTRATION AND FACULTY APPOINT
CONSULTANTS PREPARE TRAINING PLAN
TASK TEAM ORIENTATION
TASK TEAM ACTS
PREPARE COMMUNICATIONS
ORIENT FACULTY AND STAFF

Seeing that the chairperson in conjunction with the various levels of faculty have the power to initiate change; the planning of a task team starts here. Since this is no trivial matter, a consortium of faculty members, administrators, and representative members of staff are assigned the duty of appointing the members of the task team. I would suggest a time table to expedite this process. At any rate, the appointees must represent individuals with a degree of familiarity with the problem and the system of information storage currently utilized by the college and by the department. In addition, receptivity, that is the attitude for change, must be considered to ensure the proper climate for creativity (Minter and Lawrence, Management Information Systems: 62). It is essential that the task team be a responsible set of educators whose personalities translate into teamwork and engagement. Finally, each of the segments of the educational team must be available for work: instructors, staff, and administrators.

This task team, once appointed, functions as the agent for change and thereby gathers the data relevant to the problem. Since data gathering involves the collection of empirical facts, this procedure is often too complex for the novice; therefore, consultants and the business manager of the college can detail the data-gathering system and prepare an orientation and training plan to direct the team toward the appropriate sources of data bases. Data bases can be accounts, student records, inventories,

salary and course schedules, or any analytical functions of the department. The purpose of the task team is thus to assess any common needs that can be mechanized through MIS and to funnel through the existing records or data and to find the most suitable approach to the problem. Since a problem is identified, the objective will be the change of the status quo. Most important of all, the faculty in question must be informed by way of the most expedient avenue: newsletters, meetings, or memos. At this point the department is ready for the management information system (MIS) to resolve the problem.

Management information systems are generally of two types: simple data banks and advanced MIS systems. The simple data bank is simply a storage system for information that can be drawn upon either through computerized data retrieval or simple record keeping. Since educational records are of many categories, they lend themselves best to computerized retrieval, but simple notebooks, folders, ledgers, reports, vouchers, bills, etc. are commonly and cheaply the formal communication media for multi-year information in small departments. The simple MIS system assembles and displays information about the financial activity of the department and its attendant costs (Baldridge and Tierney, New Approaches to Management: 26). Since the product of this MIS system is data display for information, the resolution of the problem is accomplished through analysis of which managerial procedures minimize cost and maximize work. The field of accounting, linear programming, and marginal analysis are schemes that provide

approaches to optimization. Managerial accounting involves internal control of assets and includes the control of error and embezzlement. This continuous system of automatic verification can also predict future financial responsibilities by analyzing variable versus fixed costs, that is, the fluctuations of expenditures (Hentschke, Management Operations in Education:32-52). If the simple MIS system projects the need for new equipment purchases, the business manager and the chairperson will decide which items are most cost efficient, and will produce the most work. Marginal analysis can be used to resolve practical problems generated through the simple MIS system in profit and inventory analysis, asset growth, and revenue approximation (Kalmanson and Kenschaft, Calculus: 7-287). Last of all, spreadsheets using Lotus 1-2-3 (IBM) can project costs, balance budgets, make charts and graphs, and calculate grades (Larsen, Using Spreadsheets in the Language Profession: 1100-1104).

Undoubtedly, complicated mathematical procedures are less likely to be done by hand since the advent of the computer. Advanced MIS systems combine the data-gathering process and manipulate the data. The computer hypothesizes about the future range of expenditures if variable A and variable B exist now (Baldridge and Tierney 29). For example, one might want to determine the level of expenditure if there are increases in enrollment by a specific percent. The computer gathers data concerning enrollment history (variable A) and expenditure growth (variable B), and through simple regression displays the actual relationship between variables A and B. The goal is prediction (Hatch and Farhady,

Research Design and Statistics for Applied Linguistics: 215-242). A more complex model is the following example: it has been determined that the department will have to utilize computer assisted instruction and will buy several microcomputers. The computer gathers the data on histories of repair and maintenance costs (Variable A), labor and training costs (Variable B), software and computer costs (Variable C), and the projected enrollment of students versus the present enrollment (Variable D). The total cost of instruction and hardware can be estimated (Hinkle et al., Applied Statistics for the Behavioral Sciences: 394-413).

The following example is taken from higher education, but has demonstrable implications for elementary and secondary education. A ten percent increase in class size has been predicted throughout the modern languages department. This department wants to allocate its resources and instructors appropriately at the least cost to the department, and ultimately to the university. It has prepared a student enrollee report for actual and projected use of the program. The department has prepared a description of costs to the fixed operating budget. Under present conditions, the faculty remains intact; but under projected conditions, the faculty has to be increased by two. The amount of classroom and laboratory space is also increased in the projected condition. The 1990 mandated increase in class size and the history of enrollment patterns are projected to 1992 to give an estimate of the allocation of both faculty and instructional space (Minter and Lawrence 50).

The previous example has definite implications for the lower schools in the area of classroom scheduling and personnel

allocations. Problems frequently occur, when because of external causes, there is an enrollment increase or decrease in the school center. Either circumstance implies the possibility of equipment, supply, material, and monetary changes. The most outstanding problem involves classroom scheduling per se. Variable A represents teachers and their course offerings, and Variable B represents the student preference for a set of four or five courses. The trick is to match the course availability with the student at a specific time (Hentschke 276-277). The advanced MIS system collects the data on student course requirements, present course offerings, and the number of rooms and faculty. Next, the computer matches the student choices with the available courses and a schedule is generated. Administrators can also monitor enrollment by feeding enrollment by course information into the computer. The computer systematically matches each course with the number of enrollees. As a consequence, administrators and business managers can allocate funds as a result of these projections (290).

One type of MIS system is the Comprehensive Analytical Methods in Planning in University Systems (CAMPUS). This system uses mathematical and PPBS models, and information systems. CAMPUS can receive information from a data processing center in readable form or it can form its own data base (Minter and Lawrence 59). CAMPUS IV can simulate over long periods of time. It can:

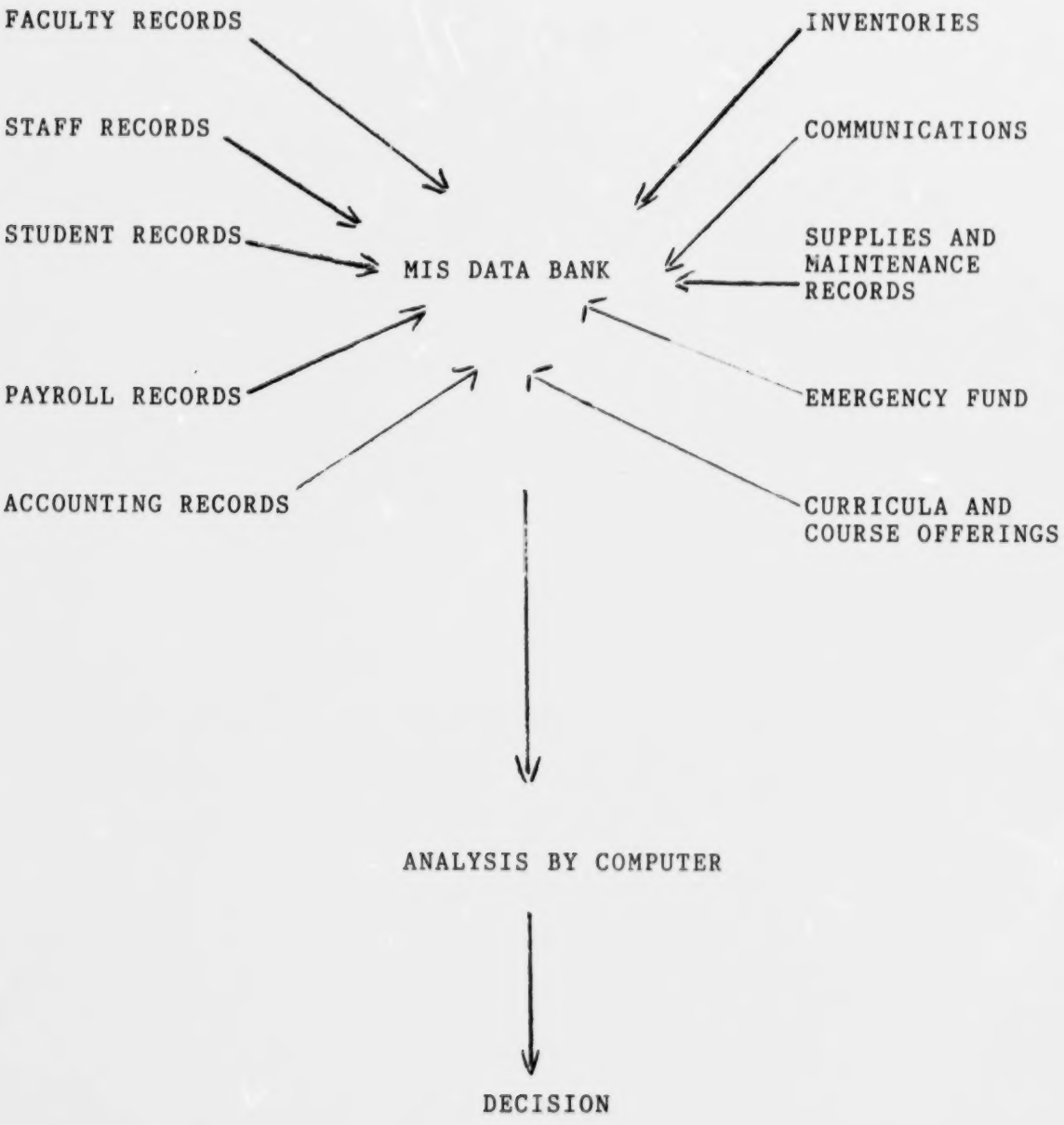
1. Process data about college structure
2. State the levels of programs
3. Detail activities within programs
4. Detail policies of space allocation, resources, and staff (44).

Another MIS system is the Resource Requirements Prediction Model (RRPM) which was developed by the University of California. RRPM is much less complex and costly than CAMPUS and unfortunately yields less data. The System for Evaluating alternative Resource Commitments in Higher Education (SEARCH) is best suited for small institutions and differs from RRPM and CAMPUS. SEARCH divides data into five modules: students, programs, faculty, facilities, and finance. Of special interest to department chairpersons is the function that allows an analysis of cost and expenditures (43).

CAMUS III adds a new dimension to the MIS system. This system includes a gaming component that creates and simulates managerial problems. This computerized simulation of budget crises and resource allocation or re-allocation problems test and drill the user under different conditions. The user learns to habituate him/herself to decision-making and forecasting.

Consequently, MIS systems can be envisioned as the result of our technological progress from the simple accumulation of routine information (paper and files) to the ever-increasing need to process a multiplicity of data from hundreds of sources (data bases). It is inevitable that information will proliferate and that information can no longer be contained in vast files and little notebooks. Information processing systems are systematic files in which data can be retrieved quickly and analyzed by the user. As an illustration of a MIS system for modern language departments, I offer the following design that demonstrates the wide range of data bases and variables involved in decision-making:

MANAGEMENT INFORMATION SYSTEM



In conclusion, department chairpersons are faced with the laborious task of trying to make ends meet, allocate personnel, space, and manage funds in the most expedient manner. One technique used in decision-making can be management information systems (MIS), systems that not only collect data but also analyze it. Before any system can be installed, a task team or fact-finding group should sort out the dynamics of the problem. Once this team accomplishes its objective, a MIS system can be finalize the decision-making process.

I must reiterate that there are limitations to MIS systems and to any analytical procedure. Decisions by computer are theoretical operations that cannot take into account extraneous variables or variables omitted by the programmer. Final decisions are human decisions.

DEFINITION OF TERMS

Business manager: any administrator who handles the financial operations of a school plant or a school system.

Management: the planning, the organizing, the directing of an activity, person, place, or institution (Sisk, Principles of Management: 3).

Information: data stored in or retrieved from a computer; facts learned or something told (Guralnik, Webster's Dictionary: 297).

System: parts that are interrelated in a manner that forms a unified whole that is more than a mere summation of the parts (Sisk 12).

Data: facts or figures from which conclusions can be drawn (Webster's Dictionary 150).

Data base: a reservoir of data which is available to the functions of the information system (Minter and Lawrence 10).

Revenue: increases in assets and decreases in liabilities, thus augmenting funds for more expenditure (Hentschke 7).

APPENDIX

ADVANTAGES AND DISADVANTAGES OF MIS

Advantages (by variable and function)	Disadvantages
1. cash management	1. complexity
2. facility	2. maintenance problems
3. risk management	3. cost (relative)
4. inventory	4. junk proliferation
5. emergency fund management	
6. budget planning	
7. classroom scheduling	
8. organizing personnel	
9. salary-payroll scheduling	
10. enrollment forecasting	
11. personnel forecasting	
12. easy data retrieval	
13. registration	
14. documentation and reports	
15. accounting	
16. computer assisted instruction	
17. efficiency	
18. speedy output of data	

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